Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

1. (Currently amended): An apparatus for sampling gas phase molecules, comprising:

(a) a semi-permeable, gas-permeable membrane having a permeate side and a sample side;

(b) a support structure that supports said semi-permeable membrane;

(c) a heater for said semi-permeable membrane;

(d) a vacuum source that generates a reduced pressure at said permeate side of said semi-permeable membrane; and

(e) a gas chromatograph in fluid communication with said permeate side of said semi-permeable membrane,

wherein said semi-permeable membrane does not permit bulk flow of liquids and solids.

2-4. (Canceled).

5. (Previously presented): The apparatus of claim 1, wherein said semi-permeable membrane is a polymer.

6. (Previously presented): The apparatus of claim 5, wherein said semi-permeable membrane is a tetrafluoroethylene polymer.

7. (Original): The apparatus of claim 1, further comprising a trap in fluid communication with said permeate side of said semi-permeable membrane.

8. (Original): The apparatus of claim 1, wherein said vacuum source is a vacuum pump.

9. (Currently amended): The apparatus of claim 1, further comprising a sample loop in fluid communication with said permeate side of said semi-permeable membrane and said gas chromatograph ~~analyzer~~.

10-19. (Canceled).

20. (Currently amended): A method for sampling gas phase molecules of a sample, comprising:

(a) placing a semi-permeable, gas-permeable, heated membrane having a permeate side and a sample side in fluid communication with the sample;

(b) generating a reduced pressure on the permeate side of the semi-permeable ~~gas-permeable~~ membrane with a vacuum pump to draw the gas phase molecules from the sample through the semi-permeable ~~gas-permeable~~ membrane to the permeate side and then to a sample loop; and

(c) analyzing the gas phase molecules in a gas chromatograph, wherein the gas chromatograph is in fluid communication with the sample loop,

wherein the semi-permeable membrane does not permit bulk flow of liquids and solids.

21. (Canceled).

22. (Previously presented): The apparatus of claim 1, wherein said semi-permeable membrane comprises a screen coated with a polymer.

23. (Previously presented): The apparatus of claim 22, wherein said screen comprises stainless steel.

24. (Previously presented): The apparatus of claim 22, wherein said polymer is a tetrafluoroethylene polymer.

25-26. (Canceled).

27. (Previously presented): The method of claim 20, wherein the semi-permeable membrane comprises a screen coated with a polymer.

28. (Previously presented): The method of claim 27, wherein the screen comprises stainless steel.

29. (Previously presented): The method of claim 27, wherein the polymer is a tetrafluoroethylene polymer.